



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,858	03/30/2004	Susanne A. Paul	SIL.P0075	3449
30163	7590	03/27/2006	EXAMINER	
JOHNSON & ASSOCIATES PO BOX 90698 AUSTIN, TX 78709-0698			SHINGLETON, MICHAEL B	
			ART UNIT	PAPER NUMBER
			2817	
DATE MAILED: 03/27/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/812,858	Applicant(s) PAUL ET AL.	
	Examiner Michael B. Shingleton	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47-80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 47-80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/1/05 2 sheets, 11/10/05 ONE sheet
2/3/06 2 sheets
- 4) ☐ Interview Summary (PTO-940)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Michael B. Shingleton
MICHAEL B SHINGLETON
PRIMARY EXAMINER
ART UNIT 2817

DETAILED ACTION

The terminal disclaimer submitted February 3, 2006 has been approved.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 47-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meiksin et al. 6,370,396 (Meiksin) in view of Nalbant 6,763,114 (Nalbant).

Meiksin discloses a RF structure and method where the bridge power amplifier is able to supply high current into the antenna without the need for a high voltage. Meiksin is silent on the structure of the bridge amplifier structure. Being that an antenna is involved in Meiksin, the device is considered to be "wireless".

At least Figures 3 and 6B and the relevant text of Nalbant disclose a CMOS device and method for operating the CMOS device. The device of Nalbant is primarily disclosed as being used for audio applications. However, this is merely one example of the intended use of Nalbant. The circuit may be used in "applications requiring low power consumption and needing high power output" as disclosed by Nalbant. The power amplifier of Meiksin is one such use requiring low power consumption and high power output. As shown Figure 6B of Nalbant two CMOS pairs are provided thereby forming a bridge power amplifier structure. The first CMOS pair is composed of Q1 and Q4. The second CMOS pair is composed of Q2 and Q3 as is clearly illustrated in Figure 6B of Nalbant. Figures 6A and 6B in combination of Nalbant clearly shows these pairs of switching devices being connected between a "voltage differential". As recited in column 2, around line 9, the CMOS transistor pair Q1 and Q4 is turned on and off together as a unit. Such is also the case with the transistor pair Q2 and Q3. The switching of these pairs is done in an alternative manner i.e. when Q1 and Q4 are on then the pair represented by Q2 and Q3 are off. Element 10 and the inductances L1-L4 form an inductance between the switching devices of each respective pair of switching devices. The claims also recite functional language like "limiting the maximum voltage imposed across the switching devices".

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2817

invention was made to replace the bridge amplifier structure of Meiksin with one taught by Nalbant because as the Meiksin reference is silent on the exact structure of the bridge amplifier structure one of ordinary skill in the art would have been motivated to use any art-recognized equivalent bridge amplifier structure including one that has a power amplifier such as the one taught by Nalbant. Thus the use of RF power amplification would be provided for in such a combination.

The claims also recite the step or function of "limiting the maximum voltage imposed across switching devices". This is a broad limitation for it does not say limiting the maximum voltage as compared to what. Furthermore, such claim language is broad in that any structure that has switching devices would limit the maximum voltage imposed across the switching devices even if that limiting structure is the switching device themselves. Any switching device can only stand a certain maximum voltage before these switching devices are destroyed thereby limiting the maximum voltage that can be imposed across the switching devices. The capacitance elements of Nalbant also have a limiting effect on the maximum switching voltage present. In addition to the above interpretation, applicant attributes in the disclosed invention one way the limiting of the maximum voltage to the operation of the CMOS devices is because of the synchronous manner in which the CMOS devices are operated. Such is the case with Nalbant and accordingly even though Nalbant is silent on saying the "limiting the maximum voltage imposed across switching devices", Nalbant has this function because of the operation of the CMOS devices is the same as applicant's invention with an inductor positioned in between the pairs of CMOS devices. Furthermore note the capacitor elements like C9 and C10 in Nalbant. Another claimed functional statement is like that that appears in claims like claim 63. Here the functional statement of "reducing the peak voltage of an RF amplifier" is recited. This is assumed to be covering the same subject matter as the functional language that limits the maximum voltage across the switching devices. However like the functional language that limits the maximum voltage across the switching devices, this language relating to the peak voltage is likewise a broad limitation in that claims fail to recite where the peak voltage is reduced from. It seems that there will always be an RF amplifier combination that has a higher peak output voltage than the present amplifier combination. Also as noted above applicant attributes this function to the operation of the CMOS pairs in a synchronous manner. Since Nalbant provides this type of operation, Nalbant is also seen as reducing the peak voltage in the manner of the disclosed invention should applicant limit this claimed function to more closely resemble the disclosed invention.

As noted above the examiner made reference to the capacitors C9 and C10 as being similar to C1- and C3+ of the disclosed invention. The claim also recites that the "inductor charges or discharges the

first and second capacitances during the second time period". There are only two possibilities with a capacitor and that is a capacitor is charging or it is discharging. Thus the capacitors C1- and C3+ of Nalbant are either charged or discharged by the inductance during the dead time when all the switches are turned off (Note that the claims do not recite that the second pair of switching devices are turned on for the entire second time period only that they are turned on sometime during this second time period.). Note that the "load" being the inductance elements also has other reactive elements that are considered to be part of the load. For example capacitive elements C1-C4 are reactive elements that are part of the load structure.

Claims 79 and 80 recites the only two possibilities for the conductivity the pairs of switching transistors. In Nalbant the first transistor Q1 is a p-channel device and the second transistor Q4 is an n-channel device and thus the subject matter of claim 80 is met. However, forming the exact opposite with the first being the n-channel and the second being the p-channel device with opposite supply voltages is a well-known art-recognized equivalent form of the circuit. Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the first transistor from a n-channel and the second transistor from a p-channel since the examiner takes Official Notice of the equivalence of the use of the opposite conductivity types to form the circuit. In other words forming the circuit from an opposite conductivity is merely an art-recognized equivalent form of the circuit and accordingly the use of the opposite conductivity type for the circuit would have been obvious to one of ordinary skill in the art at the time the invention was made. Note that art-recognized equivalence is a proper motivation. (See MPEP 2144.06, 2144.07 and 2144.03)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The use of bridge based amplifiers to provide RF amplification is specifically shown in Figure 1 of Gerfault US 5,453,717.

Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

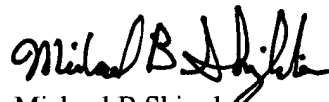
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Art Unit: 2817

Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 and after July 15, 2005 the fax number will be 571-273-8300. Note that old fax number (703-872-9306) will be service until September 15, 2005.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
March 3, 2006


Michael B Shingleton
Primary Examiner
Group Art Unit 2817